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Theories Behind Language Acquisition Theories*

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Passive and dynamic views of language learning

Since language is species-specific, clearly there is *something* innate in every human being which makes it possible to learn a language. Just what that is the object of considerable debate between rationalist- and empiricist-oriented linguistics.[1] A distinction has been made between a "content child" and a "process child,"[2] the former referring to the rationalist view that a child is born with advance knowledge of an elaborate set of all linguistic universals and the means to determine (learn) the language he is exposed to; and the latter representing an empiricist view (where no great discrepancy is seen between language experienced and language learned) which minimizes the extent of innateness to a certain ability or propensity to acquire a language through extensive exposure to it.[3]

Langacker sees this issue as a choice between positing no linguistic structure as innate or positing almost all of language as innately specified. Derwing cites this view and a number of others, denying that there is such a dichotomy, because of the "limitless number of logically possible

* This paper is part of a wider discussion, "Units and Rules in Language and Linguistics," a search for some resolution of the debate between transformational-generative grammar (TGG), philosophically rationalistic and psychologically cognitive, and the more empirical and behavioristic linguistic thought: the empirical theory of language (ETL), stemming from "structural" linguistics.

gradations between"[4] and later concludes again that there are "numerous logical alternatives to Chomsky's content hypothesis of innateness which might explain the species-specific character of language..."[5] What is suggested below is that in fact there is a very basic flaw common to many of these alternatives. To do so, it will suffice to consider the two most polarized points of view; the others fall between these.

Empiricism sees little or no difficulty in accomodating reality (for the linguist, language as it is used) with knowledge of it (competence, in linguistics), since this school, as a general tendency, equates knowledge with experience. Thus, linguists of this denomination minimize the discrepancy between "primary data" and language as acquired. In more extreme cases, empiricists rule out the very possibility of a difference between what a person is exposed to and what he learns.

In studies of the mind today, empiricism is strongly influenced by the philosophy of materialism, according to which an explanation of learning in man must be viable for some highly complex machine.[6] Given this mechanized view of man as an apparatus of clearly observable discrete material parts, a "black box" approach to solving the problem of knowledge and language acquisition is envisioned.[7] And it is in this framework that the present debate is formulated: for Chomsky the box contains linguistic universals; for empiricists, the minimum necessary for coming to perform properly in a language.

The rationalists' view is explained, of course, by the great discrepancy they see between phenomena (primary data, for the linguist) and ideas (competence acquired). Thus, Chomsky concludes that the *tabula rasa* thesis is not viable, and that knowledge of grammatical structure cannot be explained by inductive operations "developed within linguistics, psy-

chology, or philosophy." Chomsky is presumably referring to positivistic formulations of linguistics, psychology and philosophy which construct models of acquisition of a *passive* (mechanical, impersonal) nature as explanations of an active (personal) knower. It is true that a more convincing formulation is needed, but, unfortunately, Chomsky does not rise above the *man the machine* bias of his age.[8] His only recourse, then, is to assume that what the complex machine cannot accomplish towards knowledge (and language) acquisition must be present *in* the machine to begin with. Within a mechanized view of man, Chomsky's conclusion is logical. Therefore, if the conclusion is unacceptable, the only recourse is to seek a new point of view.

Let us recall first that the quest for simplest statement, in linguistics in general and in TGG in particular, has led to extremely abstract descriptions of language. Ironically, when such a description is assigned to an individual person, the result is an apparatus far more complicated than what introspection comes close to bearing out. Thus, Chomsky is impressed with what he construes to be a chasm separating knowledge acquired and data observed. But, for his position to be verified, it is necessary to show that what the learner acquires are the units and rules required by a machine--the most economically programmed machine, in fact. And since ETL works in basically the same materialistic framework, the debate between these two schools revolves around an unreal issue: how can a person learn a language description designed for a computer?

The position adopted in TGG that experience and knowledge are to be distinguished—that knowledge is not merely a direct copy of perceptions—is well taken, given the active and *creative* interpretation of reality evident in knowledge acquisition. But this distinction is carried to an extreme

when perceptions are reduced to a mere trigger for activating innate knowledge. In a footnote to his discussion on how a child processes primary linguistic data, Katz says that "the role of experience is primarily to provide the data against which predictions and thus hypotheses are judged. Experience serves not to provide the things to be copied by the mind, as in the empiricist's account, but to help eliminate false hypotheses about the rules of a language."[9] It is quite revealing that he refers to the psychological role of experience in knowledge acquisition without mentioning its role as a representation of external realities.

Intuitively, one is prompted to say, against this rationalism, that knowledge *can only mean* knowledge *of reality, not* knowledge of ideas (innate or otherwise), which would be redundant. A tree, after all, is not just the experience we derive from it, nor merely our knowledge of it; it is a tree even if not known. It may be grouped in other languages with things not called *trees* in English, but this does not alter its objective status as a thing unto itself. And against extreme empiricism, it would appear that human knowledge of a thing is of two types: perceptual (taking in individual-specific aspects of that singular thing) and intellectual (an awareness that the thing has an essential unity equivalent to other similar *things, beyond a mere conglomeration of* perceptions of it.

That being the general difference between these two schools, we can now look at a weakness they share: their reduction of learning entirely to external factors, much as a computer is programmed from the outside. The only difference between them is a trivial one: that the rationalist's computer is more sophisticated. For the empiricist, the action of the external world on the senses is the cause of knowledge. And for the rationalist, part of the cause is relegated to heredity; and this innateness

is so extensive as to fill the experience-to-knowledge gap completely. Now this truely impoverishes the capacity of man to know,[10] for it assigns learning to factors already there, leaving no room for a creative, intellectual interpretation of experience.[11] This alone contradicts something which is intuitively obvious, even if pending rigorous formulation: that each individual has considerable leeway of thought in coming up with *personal* explanations of the same reality we all see (thus we have debates in linguistics, for example).

In this issue, as in many issues in linguistics, it would be safer to adopt as a point of departure apparent facts which are rather certain—those which are instinctively correct and enjoy conventional agreement—and work from there to a theoretical statement. By way of example, a basic weakness of TGG in particular is to begin with the assumption that the simplest theory is the truest and to stay with this even when conclusions seem to contradict the data of introspection. A valid contradiction of common sense must be accompanied by an explanation of why the supposed error was generally accepted as true (as, for example, in the case of the apparent flatness of the earth). Both TGG and ETL fail here in this sense: neither offers an account of why we feel that our thinking is not entirely determined by external (non-personal) factors; in effect, they seem to consider such a feeling an illusion.

This view of knowledge and language acquisition as passive, noncreative and mechanical is evident in many authors.[12] Householder speaks of "(a) an *automatic* generalizer, a tendency to assume that even a single instance allows the formulation of a general rule and to formulate some such rule however insufficient the data, along with (b) a similarity-seeking *drive*, which *forces*, at every new experience, an exhaustive memory search

for all previous experiences which could be said to resemble it in any way."[13] The use of terms like "automatic," "tendency," and a "drive" which "forces" certain reactions to sensations—especially if projected to adult learning—certainly carries the implication that there is nothing creative about knowledge acquisition.

There are statements which carry this mechanization to its logical extreme: the denial of freedom. Anastasi maintains that "*every* trait of the individual and *every* reaction that he manifests depend both upon his heredity and upon his environment."[14] No other factors are considered. The individual is a victim of circumstances, and no freedom is acknowledged at all. The fact that we are intuitively aware of this freedom means that it is not to be swept under the carpet for being difficult to account for, or brushed aside as an unscientific illusion. It must be accepted or disproved. And neither the rationalism nor the empiricism behind current linguistics (nor, therefore, any of the shades between) will be able to account for the freedom of mental activity.

Compare this deterministic view of the human mind with that of Jolivet, who considers thought as "essentially dynamic," because "it implies a constant movement" between ideas, relating them in new ways. "It is this very movement, this internal tension which amounts to (1) "maintaining a unity which analysis or division continually work to destroy and (2) discovering in confused unity...the interminable diversity which is its richness. Thinking is therefore, in a sense, creating..." He adds: "the mind does not truely understand what it does not in some way engender itself."[15]

It will be interesting to go on to consider, in summarized form, remarks by Jolivet[16] regarding materialism in psychological studies which seem

to apply directly to the framework in which the TGG/ETL debate on learning takes place. Jolivet ranks materialistic theories in psychology as an opposite extreme from those of Descartes and others who reduce this science to the area of the consciousness. Materialism equates the psychic and the physical, which are seen to differ only in the way they are known. Bergson finds this position untenable. He points out that, according to this hypothesis, mental representations of the world "would be a product of the brain, which is nothing more than a part of the world. Thus, a part of our representation would be the cause of the whole representation, i.e. one part of the world would produce the whole world, which is absurd." Jolivet himself objects that materialism is not so much a psychology as it is a philosophy, and has against it, in any case, that what are intuited as really distinct (physical and psychological realities), and which cannot be known through the same means, are equated by definition.

Materialistic psychology finds a kind of extreme in the behaviorism of Watson, who maintained that psychism is not able to go beyond the myth of the soul; internal life and consciousness cannot be objects of science properly speaking; introspection is confusion and full of vagueness. But Jolivet points out that a psychology which denies the consciousness would be a science without an object. Studies of stimulus and response must lead to a knowledge of the individual himself, who intervenes between stimulus and response.[17] To ensure for psychology completeness and exactness, a study of observable organic and physiological conditions will provide an empirical approach to underlying realities. But there is no real motivation (apart from philosophical bias) for determining *a priori* to interpret S-R phenomena in a purely organic and physiological sense (which would leave psychology indistinguishable from physiology). Mc-

Dougall[18] has shown that even the instinctive activity of an animal requires explanation in psychic terms. Thorndike makes a similar point. All the more in the case of man. Lalande wonders how a term like Pavlov's "reflex" can be applied to cognitive, aesthetic, and volitional activities. "The idea of reflex," Jolivet comments, "implies something mechanical, regular, and impersonal, which is the least suited to higher forms of psychological life."

The expression "neuropsychic" phenomena, used in materialistic behaviorism, already exposes an error of this doctrine. "If psychic facts are reducible to nervous conditions, what need is there to speak of neuro*psychism*?" Betcherew explains that this is in order to distinguish neuropsychic reactions (cries of pain, etc.) from purely somatic reactions (inflamation of the tissues, etc.). "But from the behaviorist point of view, this distinction is entirely arbitrary" and circular: psychism is defined by reflexes, "and here reflexes are distinguished according to the presence or aosence of psychism! In addition, the behaviorist definition suffers from the defect of excluding from psychology all intellectual and affective phenomena not evident in specific behaviors."

This, then, is the psychology, or even philosophy, within which two schools of linguistics seem to find themselves and within which they debate. Can we expect much in the way of enlightenment even if they come to terms? Will this not just bring into linguistics other counter-intuitive conclusions arising from materialistic over-axiomization?

Bases for an alternatire

Historically, the rationalist/empiricist debate finds its origin in no less than the so-called problem of the universals, which, briefly, comes down

to the following paradox: an idea, which is an abstract sign of reality, does not seem to correspond to anything real, since everything real is individual.[19] Although this question appears far removed from anything linguistically interesting, its solution (i.e. the personal philosophy of the linguist) can be expected to influence very directly one's conception of how linguistic data relate to acquisition of competence.

On the basis of Jolivet's treatment of the subject, it will be useful to recall the main lines along which empiricism and idealism view this problem of ideas.[20] He groups both these schools under "nominalism" and sees in them the common trait of denying the ontological accessibility of abstract notions. Empiricism tends to equate idea and image; idealism admits of universals (ideas), but not as accounted for by experience. (Here, already, the parallel with the ETL/TGG debate on language acquisition is apparent.) In his choice of philosophy (a basis for his study of psychology) Jolivet chooses the Aristotelian version of inductive abstraction, which he feels combines the advantages of both empiricism and idealism.[21] Together with empiricism, it preserves the *idea* as real or objective, though distinguishing it from an image. On the other hand, abstractionism agrees with idealism on the atomistic, discontinuous, and inconsistent nature of the universe, lacking the unity proper of an idea. But the error of idealism is seen to be "making the idea something extraneous to sensible reality." Thus, expiricism and idealism agree that the choice is between sensible reality *or* the idea. The idealist maintains that if the idea is real, it is not rational; the empiricist says if the idea is rational, it is not real. Aristotle takes the stand, rather, that the idea is both real (its origin lies in experience) and rational (it expresses an abstraction not found as such in external reality).

It would be reasonable, then, to avoid both the idealist or the empiricist philosophies since both have overaxiomized their original assumptions, and, in either case, the linguist runs the danger of a biased conception of language acquisition prior to a study of it, while carrying into linguistics pitfalls parallel to those found in these two philisophies. Aristotelian abstractionism promises a more flexible framework: just as this school appears to satisfy the more reasonable demands of both idealism and empiricism, we can hope that it will provide a certain leeway to enable resolving issues in linguistics on which rationalists and empiricists seem hopelessly divided. This hope is fostered by the nature of Aristotelian philosophy, which is a school of thought capable of providing a philosophical basis for empirical study. Jolivet feels that the respect for the reality and the autonomy of experimental psychology, for example, finds its roots in the psychology of Aristotle, who held that, to arrive at a definition of the nature of the soul, one must begin with a study of psychological phenomena. Binet wrote, in fact, that the only philosophy which possesses the elements necessary as a basis and justification of an experimental psychology is this one.[22] If this is the case, then the advantages of Aristotelianism carry over into linguistics, a branch of cognitive psychology.

But, for the linguist, of more immediate interest than a choice of philosophy is the choice of psychology. We can note, then, the gist of Jolivet's remarks regarding the psychology eleborated within the framework of Aristotelian philosophy.[23] According to Aristotle, the psychism is defined by the concept of *life* and presumes only to designate the reality of some vital principle such as vegetal, sensitive, or rational. In this way the original assumptions are minimized. And in practice it is the current

usage "to reserve the term *psychic* to refer to everything which concerns in any way [cognitive and affective life"—a reasonably "objective and precise definition of the object proper of psychology." This definition implies no philosophical bias and does not prejudice further statements about the nature of the psychism. It merely sets down that, empirically, all cognitive and affective phenomena pertain to the psychism. At the same time, this implies that psychology must take into consideration those biological and physiological phenomena which are united to cognitive and affective activity.

Within such a framework, psychology accomodates many points of view being debated and takes in the conscious, the unconscious, physiological phenomena, behavior, analogies with animal psychology, and even social influences. This synthetic starting point is "a sign and guarantee of objectivity."

To accomodate the advantages of both idealism and empiricism in a psychological framework, Jolivet sets up a framework of more immediate interest than philosophies like materialism, spiritualism, empiricism, rationalism, etc.[24] Such hypotheses he sees as too far removed from psychology to be directly borne out or negated by psychological facts. He makes reference to a psychological dualism in setting up a hypothesis for his study: Data available call for an underlying dynamism for explanation. Psychological activity is always united to and directed by facts of consciousness—facts of a specific or concrete nature and those of an intellectual or abstract nature. From this cognitive duality he sees "a *sensible activity* over sensible reality and an *intellectual activity* over immaterial and abstract objects." This much is considered the area of facts requiring explanation, and for this he sets up his dual-principle hypothesis: "the whole

of psychological life is directed by two distinct principles, one of which, referred to sensible reality, is oriented and directed by the other principle, which is referred to the abstract and immaterial aspect of things."

This thesis is developed (against rationalism) by pointing out that knowledge of specific physical realities (through images in the brain) is not entirely separable from knowledge of abstract realities. This is seen, first of all, in the origin of ideas,[25] all of which ultimately arise from images (the essential features of which are arrived at by inductive abstraction)—following Aristotle's view that "there is nothing in the mind which was not first in the senses." Secondly, and again in Aristotle's words, "one does not think without images"—a natural consequence of the first consideration. Actually, a concept (e. g. 'rabbit') is generally accompanied by a number of images (of rabbits) of a confused or random nature. And, contrary to materialistic empiricism, thought cannot be reduced to images; thoughts "immensely surpass" imagination.

Experiments have been carried out which seem to uphold the notion of two realms of knowledge which, though distinct, are intimately related, one subordinated to the other. Experiments by Ribot concerned the following problem: "When one thinks of, hears, or reads a general (abstract) term, what in the consciousness accompanies this sign immediately and without reflection?" The procedure was to pronounce words of varying abstractions (e. g. 'dog,' 'cause') and immediately ask a subject if they called up something in his "spirit." Each of the 103 subjects cited the word itself and some sort of image. Results showed that "*in many cases the image is very different from the meaning of the word,*" and the subjects indicated "*the meaning of the word as perceived in their consciousness as distinct and independent of the image.*"

Experiments by Messer and Bühler were aimed at "determining if it is possible to think without images," i.e. whether thought is possible without any images at all, or whether accompanying images are insufficient to characterize thought completely. In one of his experiments, Messer cued his subjects with tri-syllable nouns, eliciting a subordinated concept falling within the extension of the cue. In each case the subject was immediately asked to describe the psychological process which entered into his response. Bühler carried out an experiment involving yes/no questions of a an abstract nature ("Is monism a negation of personality?" "Can you calculate the velocity of a freely falling body?" etc.). After answering with a simple yes or no, the subject was to describe immediately "what had occurred in his consciousness." The conclusions reached after these experiments can be summed up as follows: There is often *thought* without images; images play a secondary role (they are "by-products") in the thinking process; they occur to the extent that there is *doubt* in the thinking; thought and imagery function independently; and, "the logic of thought is entirely distinct from imagery."

Actually, the two types of knowledge are so extremely different that it may be impossible to conceive of some mechanical model by which one could be converted into the other. The would-be input (perceptions) and output (knowledge) are two entirely different, though coexisting, orders of knowledge. In this sense Chomsky's *discrepancy* is understandable. But his solution is not: Positing more innateness instead of less of it does not *relate* these two realms of knowledge, and, to repeat a point, still leaves the black box a passive mechanism, ignoring the active creativity evident in knowledge acquisition.[26] (Or are we to suppose that the genious is simply better wired up when he interprets some aspect of the world in a

new way? Has he simply been carrying on data-processing in some way *predetermined* by his black box?)

Jolivet's more personal and dynamic view of *interpretation* of perceptions unites knowledge of specific entities (through images, for example) with knowledge of their essential features (through concepts). Extended to language acquisition, we have here a formalized hypothesis which accomodates two very different linguistic entities: specific linguistic data to which an individual is exposed (and of which much is recorded in his memory as such), and the resulting (more abstract) competence which he acquires—in a way which relates them but does not equate them.

Notes

1) Cf. Chomsky (1965, p. 51) for remarks on this issue.
2) Various references can be found in Derwing (1973, p. 63f, for example).
3) Some of the questions in this issue are sketched in Braine (1971, p. 18f) ; see also Lenneberg (1964).
4) Cf. Derwing (1973, p. 52).
5) Ibid., p. 77.
6) See Sutherland (1966, p. 158) who extends the parallel with a computer in a distinction between competence and "mechanism," going on to distinguish two senses of "mechanism" : the make-up of the machine and the input to which it is subjected. But see Miller (1962, p. 55), too, who assures Americans that *mind* is no longer a four-letter word, going back to the idea that this is precisely the object of psychological study.
7) On the inadequacy of "models" in representing language, see comments by McDavid (1966, p. 115f).
8) Chomsky's close parallel between a linguistic theory and linguistic innateness in a child (see *Aspects*, p. 30, ff) also reduces the personal element in language acquisition by minimizing the individual's role and relegating a large part of learning to the human *species* as such.

9) Rf. Katz (1966, p. 278, n. 28).

10) Cassirer refers to cognition as creation, not imitation; see Hörmann (1971, p. 301).

11) The Aristotelian view that the link between language and the world is man-made already implies a human creativity; cf. Hörmann (1971, p. 149).

12) Nagel, on the contrary, maintains that even induction requires a "creative imagination;" noted in Derwing (1973, p. 57).

13) Rf. Householder (1971), p. 4; emphasis added).

14) Noted in Derwing (1973, p. 64; emphasis added).

15) This insight leads to a blending of what we divide as *art* and *science*. Creativity in the arts is evident; but an artistic act is originated from within the artist and, for him, amounts to a new interpretation (a revised knowledge) of reality. It is a process of active, personal, creative, and free thought, far removed from an automatic reflex in a passive, impersonal and externally-determined apparatus. Within the individual, then, are inseparably and intimately related science and art, knowing and interpreting, and in language use, construction of sentences in speaking and *re*construction in hearing. What is apparently a productive/receptive dichotomy here is not an active/passive one; all are active, creative, free and emminently personal.

16) Cf. Jolivet (1941, 13-16).

17) See Osgood's (1952, p. 149f) criticism of early behaviorism as naively Pavlovian.

18) References found in Jolivet have not been repeated here.

19) From Jolivet (1941, p. 422; the wording of the paradox is almost verbatim); see also Gilson, Etienne, *The Unity of Philosophical Experience.* New York. Charles Scribner's Sons. 1937 (pp. 3ff).

20) Cf. Jolivet (1941, 440 and 445).

21) Cf. Ibid., 446.

22) Cf. Ibid., 10.

23) Cf. Ibid., 18-19.

24) Cf. Ibid., 49f.

25) Cf. Ibid., 430.

26) Cf. Ibid., 417-19.

References

Braine, Martin D. S. (1971)

"The Acquisition of Language in Infant and Child." In Reed (1971), pp. 7-95.

Chomsky, Noam (1965)

Aspects of the Theory of Syntax. Cambridge, Mass. The MIT Press.

de Cecco, John P. (1967).

The Psychology of Language, Thought and Instruction: Readings. New York. Holt, Rinehart and Winston.

Derwing, Bruce L. (1973)

Transformational Grammar as a Theory of Language Acquisition. (Cambridge Studies in Linguistics, 10) Cambridge University Press.

Fodor, Jerry A. and Katz, Jerrold J. (1964)

The Structure of Language: Readings in the Philosophy of Language. Englewood Cliffs, N. J. Prentice-Hall.

Hörmann, Hans (1971)

Psycholinguistics: An Introduction to Research and Theory. Translated from the German by H. H. Stern. Berlin. Springer-Verlag.

Householder, Fred W. (1971)

Linguistic Speculations. Cambridge University Press.

Jolivet, Regis (1941)

Traite de Philosophie, II: Psicologie (5th edition, 1955). Lyon. Emmanuel Vitte. (For convenience, section numbers rather than page numbers are used in all references to this book.)

Katz, Jerrold J. (1966)

The Philosophy of Language. New York. Harper & Row.

Lenneberg, Eric H. (1964)

"The Capacity for Language Acquisition." In Fodor and Katz (1964, pp. 579-603).

Lyons, J. and Wales, R. J. (1966)

Psycholinguistic Papers: The Proceedings of the 1966 Edinburgh Conference. Edinburgh University Press.

McDavid, Jr. Ravin J. (1966)

"Mencken Revisited." In Emig, Fleming, and Popp, *Language and Learning.* New York. Harcourt, Brace & World. 1966.

Miller, George A. (1962)

"Some Psychological Studies of Grammar." In *American Psychologist*, 17, pp. 748-62. Reprinted in de Cecco (1967), pp. 38-55 ; references are to this source.

Osgood, Charles E. (1952)

"The Nature of Meaning." In de Cecco (1967), pp. 156-64.

Reed, Carroll, ed. (1971)

The Learning of Language. New York. Appleton-Century-Crofts.

Sutherland, N. S. (1966)

Discussion of Fodor and Garrett (1966). In Lyons and Wales (1966), pp. 154-63.